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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* KAREN BRILEY-SAEBO, ATLE BJORNERUD,  
DANIEL NANZ and DOMINIK WEISHAUP

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Appeal 2009-000553  
Application 10/018,018  
Technology Center 3700

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Decided: January 27, 2010

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Before: WILLIAM F. PATE III, JENNIFER D. BAHR and  
STEVEN D.A. MCCARTHY, *Administrative Patent Judges*.

PATE III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a rejection of claims  
14-30. App. Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

The claims are directed to an improvement in a method of interventional or intraoperative MRI wherein an invasive device is inserted in the vasculature of a human or non-human body. Claim 14, reproduced below, is illustrative of the claimed subject matter:

14. In a method of interventional or intraoperative MRI wherein an invasive device is inserted into the vasculature of a human or non human animal body or through vascularised tissue in said body, and an MR image generated of at least a part of said body containing said device and said body being administered with a blood pool contrast agent, the improvement comprising administering the blood pool contrast agent by i.v. injection directly into the body and using imaging procedure signals generated from the blood pool contrast agent surrounding said device so as to visualize said device on said MR image to guide the placement of the devices in the body.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

White	US 5,382,421	Jan. 17, 1995
Prince	US 5,553,619	Sep. 10, 1996
Filler	US 5,560,360	Oct. 1, 1996
Kuhn	US 5,810,728	Sep. 22, 1998
Ericcson	US 6,045,775	Apr. 4, 2000
Gunther	WO 97/25073	Jul. 17, 1977

Claims 14-15, 25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuhn in view of Prince or White. Ans. 3.

Claims 16-24 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuhn, Prince or White and Gunther. Ans. 3

Claims 26 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuhn in view of Prince or White, and Ericsson. Ans. 4

Claims 28-30 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuhn in view of Prince or White, and Filler. Ans. 4.

### ISSUES

Appellants argue claims 14-15, and 25 as a group. App. Br. 4. We select claim 14 as the representative claim, and claims 15 and 25 stand or fall with claim 14. 37 C.F.R. § 41.37(c)(1)(vii). While the rejections of claims 16-24, 26 and 27, and 28-30 have been mentioned separately, Appellants' arguments are based solely upon dependency from claim 14. App. Br. 8-9.

Appellants and the Examiner agree that "According to Kuhn, only when the device has been placed correctly in the body, the contrast agent can be injected from the device to the vasculature surrounding the device. This injection of the contrast agent serves a completely different purpose than visualizing the device and safely guiding the placement of the device." App. Br. 6; Ans. 3, 5; Reply Br.4. Appellants and the Examiner also agree that "Kuhn, unlike the present invention, does not visualize or guide the placement of the invasive device with contrast agent in the surroundings." App. Br. 5; Ans. 3, 5; Reply Br 3. The Examiner's contention, with which Appellants disagree, is that that instead of placing the contrast agent within the catheter to aid visualization thereof, it would have been obvious to instead position the contrast agent in the vasculature of the body in the vicinity of the catheter. Ans. 3, 5; App. Br 7; Reply Br 5. The Examiner

contends that such a modification involves the simple substitution of one possible location of the contrast agent with another in order to achieve the predictable result of allowing one to locate the tip of the catheter by identifying the contrast region boundary. Ans. 5. The Examiner concludes that such a substitution would have been obvious to one having ordinary skill in the art. Ans. 3, 5. Appellants contend that Kuhn teaches away from the Examiner's proposed modification because "Kuhn clearly states that it is highly undesirable to reproduce blood flowing around the device within the artery in high-resolution MR images, (see column 4, lines 37-41)." App. Br. 5-6; Reply Br. 4. Thus the first issue for our consideration is whether Appellants have established that the Examiner erred in concluding that the subject matter of claim 14 would have been obvious because Kuhn teaches away from injecting contrast agent into the blood in a region surrounding the inserted device.

Appellants additionally contend that "For the purpose of guiding the placement of the device in the body Kuhn only suggests keeping the contrast agent inside the device. Without thinking of achieving the same objective by injecting contrast agent to the vasculature surrounding the device, one would not look to find alternative methods of administering a contrast agent to the vasculature of a body. In other words, one would not look to Prince or White teaching a method of administering a contrast agent to the vasculature by i.v. injection." App. Br. 7; Reply Br 6. Thus the next issue for our consideration is whether Appellants have established that the Examiner erred in concluding that the subject matter of claim 14 would have been obvious because the combination of Kuhn and Prince or White would not have

taught or suggested “administering the blood pool contrast agent by i.v. injection directly into the body.”

### FINDINGS OF FACT

1. Kuhn teaches a method for positional checking of objects, such as catheters, used for diagnosis or therapy in a human or animal body. The object is filled with a magnetic resonance (MR) contrast medium and, after introduction of the object into the body, MR images of a small target region around and in front of the object are continuously formed in order to determine the position of the front end of the object by an automated image analysis. Col. 3, ll. 8-25.
2. Kuhn teaches that, when taking high-resolution MR images of the target region, blood that flows past the catheter could be reproduced and this would undesirably impede the automatic evaluation of the MR images used for determining the position of the front end of the object. Col. 4, ll. 32-45.
3. Kuhn’s discussion of the undesirable effects of reproducing the blood relate to the situation where Kuhn’s objective is to reproduce an image of the inserted object. Where both the blood and the inserted object are highly visible on the MR images Kuhn anticipates that the automated image analysis could be impeded. *See* Fact 2. Thus, Kuhn is ultimately concerned with, not whether the surrounding blood is reproduced or not, but the image analyzer’s ability to *distinguish* between the inserted object and the surrounding blood. While this fact could possibly be regarded as discouraging the reproduction of *both* the blood and the inserted object

on the MR image, it would not lead one of ordinary skill in the art away from reproducing the blood *instead* of the inserted object—as claimed.

4. Prince and White each demonstrate that the intravenous administration of MR contrast agents was well-known in the art. Prince col. 5, ll. 3-12; White col. 2, ll. 12-22.

### PRINCIPLES OF LAW

The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The key to supporting any prima facie conclusion of obviousness under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) noted that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. The Federal Circuit has stated that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006), cited with approval in *KSR*, 550 U.S. at 418.

The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR*, 550 U.S. at 416. A prima facie conclusion of obviousness may be supported by a showing that the claims are directed to a process, machine, manufacture, or composition of matter already known in the prior art that is altered by the mere substitution of one element for another known in the

field, and such modification yields a predictable result. *See id.* (citing *United States v. Adams*, 383 U.S. 39, 40 (1966)). The Court further stated that:

[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

*KSR*, 550 U.S. at 417. When considering obviousness of a combination of known elements, the operative question is thus “whether the improvement is more than the predictable use of prior-art elements according to their established functions.” *Id.*

“When a piece of prior art ‘suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant’ the piece of prior art is said to ‘teach away’ from the claimed invention.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (quoting *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)). Whether a reference teaches away from a claimed invention is a question of fact. *In re Harris*, 409 F.3d 1339, 1341 (Fed. Cir. 2005).

## ANALYSIS

Kuhn teaches the basic method claimed absent injecting the contrast agent by i.v. injection directly into the body so that the contrast agent surrounds the inserted device. Fact 1. It would have been obvious to inject the contrast agent into the body to surround the device instead of placing the contrast agent in the device because doing so involves choosing from a finite number of possible locations for the contrast agent which would achieve the predictable result of making the inserted device distinguishable from the



surrounding blood on an MR image. It would also have been obvious to use the well-known technique of intravenous injection, which predictably introduces contrast agent into the blood, in order to implement such a modification. *See* Fact 4.

In the portion of Kuhn relied upon by the Appellants to assert that Kuhn teaches away from the claimed invention, Kuhn is ultimately concerned with, not whether the surrounding blood is reproduced or not, but the image analyzer's ability to *distinguish* between the inserted object and the surrounding blood. While this fact could possibly be regarded as discouraging the reproduction of *both* the blood and the inserted object on the MR image, it would not lead one of ordinary skill in the art away from reproducing the blood *instead* of the inserted object—as claimed. *See* Facts 2 and 3. One of ordinary skill in the art would have recognized that distinguishing the inserted object from the surrounding blood could also be achieved by reversing which structures are reproduced on the MR image. What a reference teaches or suggests must be examined in the context of the knowledge, skill, and reasoning ability of a skilled artisan. What a reference teaches a person of ordinary skill is not limited to what a reference specifically “talks about” or what is specifically “mentioned” or “written” in the reference. *Syntex (U.S.A.) LLC v. Apotex, Inc.* 407 F.3d 1371, 1380 (Fed. Cir. 2005). “[A] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR v. Teleflex*, 550 U.S. 398, 421 (2007).

The fact that Kuhn itself does not suggest alternate methods for achieving the objective of guiding placement of the inserted object does not establish that the Examiner erred by concluding that it would have been obvious to seek out alternative methods of doing so. The test for

obviousness is not whether the claimed invention is expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

### CONCLUSION OF LAW

On the record before us, Appellants have not established that the Examiner erred in concluding that the subject matter of claim 14 would have been obvious because Kuhn teaches away from injecting contrast agent into the blood in a region surround the inserted device. Appellants have not established that the Examiner erred in concluding that the subject matter of claim 14 would have been obvious because the combination of Kuhn and Prince or White would not have taught or suggested “administering the blood pool contrast agent by i.v. injection directly into the body.” Since Appellants’ arguments regarding the rejections of claims 16-24, 26 and 27, and 28-30 are based solely upon dependency from claim 14, Appellants have failed to establish that the Examiner erred in rejecting these claims.

### DECISION

For the above reasons, the Examiner’s rejections of claims 14-30 are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). See 37 C.F.R. § 1.136(a)(1)(iv) (2007).

### AFFIRMED

Vsh

Appeal 2009-000553  
Application 10/018,018

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